

**ABSTRACT**

The invention provides methods for reducing non-specific amplification DNA in a polymerase chain reaction comprising providing a sample comprising a target DNA sequence of interest; contacting the sample with at least one enzyme having nucleic acid polymerase activity; and incubating the sample with said enzyme for a time and under conditions sufficient to amplify the target DNA sequence, forming amplified target sequence; wherein the incubation is performed in the presence of an amount of sorbitol, or sorbitol and DMSO effective to reduce the non-specific amplification relative to the amount of non-specific amplification observed in the absence of sorbitol, or sorbitol and DMSO. The methods are suitable for amplification of ribosomal DNA, particularly from clinical samples. Compositions and kits containing sorbitol, or sorbitol and DMSO for reducing non-specific amplification are also provided.